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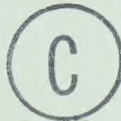
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WORD AND MEANING RETRIEVAL
IN GRADE ONE READING

BY



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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Word and Meaning Retrieval in Grade One Reading," submitted by Signe Kallal in partial fulfillment of the requirements for the Degree of Master of Education.

ABSTRACT

The purpose of this study was to examine the relationship existing between fluency in word and meaning retrieval and ability in word recognition in grade one children. Ability in word recognition was postulated as a composite of interdependent factors including the auditory and visual discrimination skills of initial word identification, and ability in word and meaning retrieval.

The subjects for this experiment were a sample of ninety first grade children from different socioeconomic status categories attending three public schools in Edmonton.

Tests for ability in initial word identification and word and meaning retrieval were administered by the investigator in May. The Wepman Auditory Discrimination Test was used to measure ability in auditory discrimination. A modification of the Word Form subtest of the California Achievement Test was used to determine ability in visual discrimination. Watts' Vocabulary Test for Young Children was adapted for use in the measurement of ability in word and meaning retrieval. The Gates-MacGinitie Reading Test was administered by classroom teachers in June to determine ability in word recognition.

Correlation coefficients were computed to find the extent of the relationship existing between scores in word and meaning retrieval and scores in auditory and visual discrimination. Similarly, correlations were obtained to determine the extent of the relationship between the word recognition components and ability in word recognition. In all cases the correlations were found to be significant at the .01 level of confidence. When correlations were compared, no significant

difference was found to exist between skill in auditory and visual discrimination, and ability in word and meaning retrieval as factors in word recognition ability.

The study revealed that most children completing grade one are quite proficient in discriminating between word forms and word sounds. But their ability in word and meaning retrieval and word recognition is considerably more disparate. The children in this study who appeared to be more fluent and have more concepts were also superior in word recognition. The subjects who had fewer ideas and less facility with language had lower scores in word recognition.

Conclusions reached from the study were that fluency in word and meaning retrieval is a significant factor in word recognition and it is interrelated with skill in auditory and visual discrimination. It might be expected that oral language experiences basic to concept formation ability should assist in promoting reading readiness and developing ability in word recognition.

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CHAPTER I

THE PROBLEM

Authorities on reading agree that in order to read a child must associate meaning with printed words. The task of the child, then, becomes one of preliminary or initial identification of the symbol and retrieval of the word and its meaning. To teachers of grade one children this implies instruction in word recognition.

Contemporary authors such as Hildreth (1958), Russell (1961), Tinker and McCullough (1962), and Bond and Tinker (1967), have demonstrated the necessity of skill in word recognition techniques in reading. Their concern for quick and accurate identification of words is apparent in the emphasis placed upon skill in the use of visual form and letter clues, and phonic clues.

It would appear that these perceptual skills are used at the stage of initial word identification which is concerned with the formation of a sensory image. Word retrieval requires the matching/ or fusing of this image with the stored image and the meaning associated with it. Then a response can be made. As Gray (1960) has indicated, not only must the initial image be clear and accurate, but appropriate stored impressions must be present - filed, labelled, and flexibly available - for success in word recognition.

Hildreth (1958) has attested to the contribution of suitable stored impressions of printed symbols in the word recognition process. She states that "the more meaning and significant a word has for the learner, the stronger the impression of word form made on

the mind, the more easily it is distinguished from other words, and the longer the impression will be retained (p.127)".

Vernon (1954) has acknowledged the function of initial word identification in word recognition. She states that the ability to name words can be developed through specific training in reading, even without a knowledge of meanings. She contends, however, that in order to name a word and know its meaning, the child requires a background of experience and the facility in language to interpret the word identified.

That beginning readers differ in word - recognition ability is well illustrated by the practice of grouping students for reading instruction in grade one classrooms. The problem, then, appears to be one of varying abilities in initial word identification and in word and meaning retrieval.

PURPOSE OF THE STUDY

Considerable experimentation and research has been done on the visual and auditory components of the word recognition process, but little has been reported on the aspect of word and meaning retrieval as here defined. The purpose of the present research was to investigate the relationship between ability in word and meaning retrieval and skill in word recognition in grade one children. Information of this nature might assist teachers in planning for small-group instruction in word - recognition skills. It could conceivably indicate to teachers whether children need basic experiences in building concepts and using them fluently and accurately, or in the skills which contribute to the initial identification

of words.

DEFINITION OF TERMS

The following terms are used in this study to represent processes in the perceptual act which are highly interrelated, and therefore reference to each as isolated and unitary is artificial and arbitrary. It is recognized that initial word identification, word retrieval, and word recognition form a psychologically coherent unit.

For the purpose of this study, the following terms are defined:

Initial word identification refers to that part of word recognition in which an image of the word is clearly isolated by means of perceptual acts.

Word retrieval is defined as that particular aspect of word-recognition behavior which enables the reader to match his sensory impression with his memory of word-recognition experiences.

Word recognition for the purpose of this study suggests the completion of the perceptual act of word identification and word and meaning retrieval.

WORD RECOGNITION

In order to recognize a word, the beginning reader usually identifies it as one previously known through listening and speaking. He must have the basic ability to perceive the visual and/auditory elements involved, as well as an adequate understanding of the meaning of the

word (Tinker and McCullough, 1962, Ch. 7).

The instant that his eyes fixate upon a word, numerous visual cues are provided by distinctive features of the letters and the total word form. Images that have been previously built up in learning to read words can then reinforce earlier primitive perceptions of line, curve, space, etc., in letters. These word parts may be integrated to become an image that represents word form. However, in instances where a word is quite familiar, the child may use reduced cues (probably a letter or letters) to identify word form (Bryant, 1962).

In the word-recognition process, initial word identification implies the ability to perceive likenesses and differences in words and letters. The child will have to be able to distinguish not only between word forms but between details within word forms. This requires rather exacting visual discrimination, an essential aspect of initial word identification (Goins in Tinker and McCullough, 1962, p. 64).

In order that the image of the word may be isolated for initial word identification, the visual form of the word should act as a cue to recall the sound of the word. Later, this deliberate matching of sound and symbol may almost disappear but, certainly in beginning stages of reading, sound and meaning are probably inseparable. The child understands speech before he learns to read, therefore the image representing the word form can be mediated with the previously established sound pattern of the word. But the child must be able to discriminate between sounds in words if the process of mediation is to lead to correct identification of words (Vernon, 1958). Skill in both visual and auditory discrimination is usually necessary for success in

initial word identification.

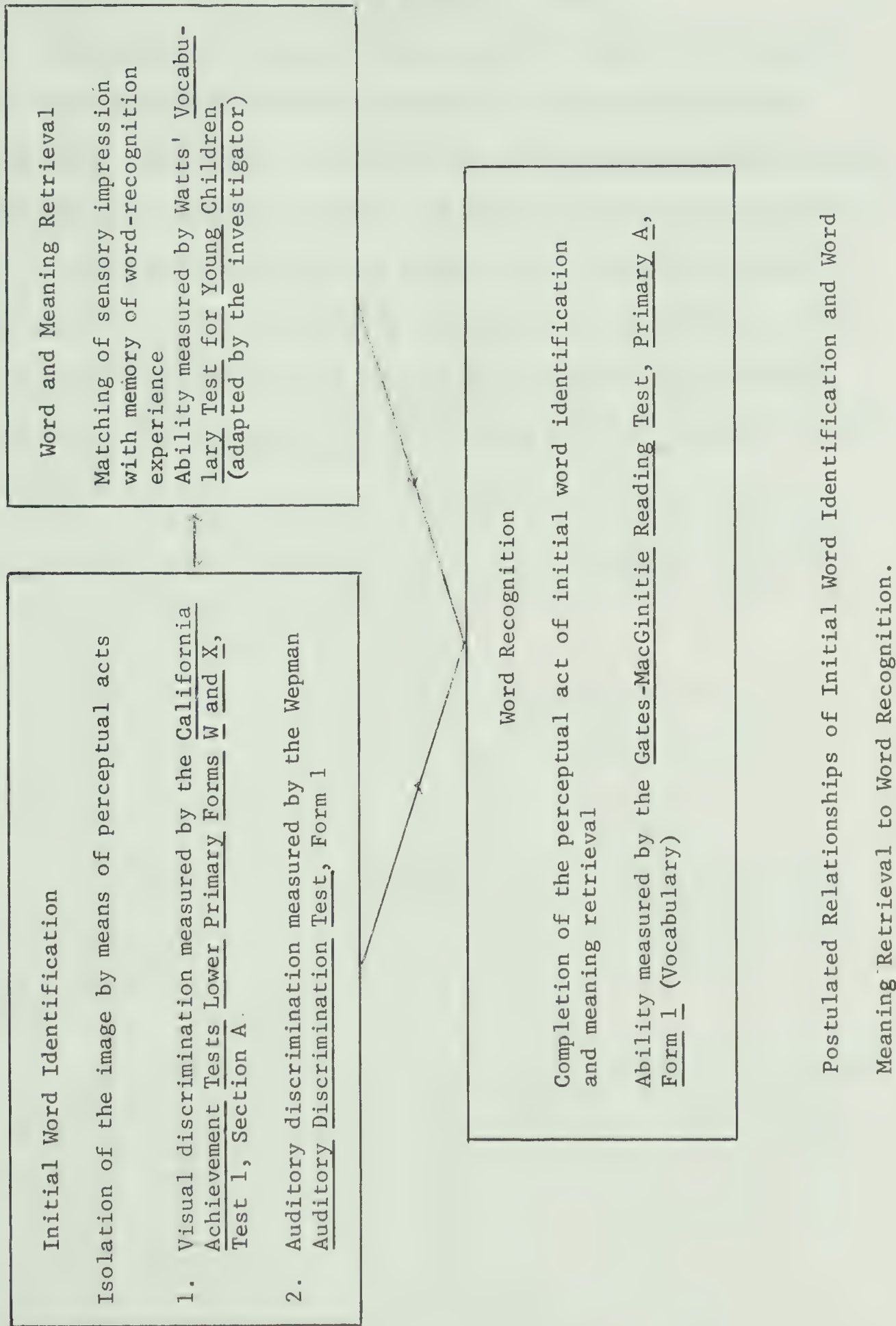
Completion of the perceptual act of word recognition implies word and meaning retrieval. Although initial word identification has been depicted in Figure 1, as an isolated process, it is recognized that it is interrelated with the retrieval of words and their meanings.

Visual, auditory and motor cues, and word meanings are undoubtedly utilized by individual children in varying degrees in word recognition. Initial word identification may be partial, or it may be complete before word and meaning retrieval takes place. This will probably depend upon the need and the versatility of the reader, his ability in visual and auditory discrimination, and his knowledge of word meanings. Word and meaning retrieval could conceivably take place simultaneously with initial word identification, or it might follow complete identification of the word. In any event, an inter-relationship must have been established between the equivalent of the child's visual - auditory - motor image of the word and the corresponding concept present in his stored image of the word.

Success in the retrieval of words and their meanings depends to some extent upon the child's concept formation ability (Tinker and McCullough, 1962, Ch.6). If he cannot immediately summon the correct response he will probably cast about and select an analogous concept from his pool of ideas.

A child's concepts have been formed gradually during his pre-school years. Each time a thing is seen or heard or experienced, he has a perception of it. Each successive perception forms and probably alters the permanent concept. Words, also, are acquired

Figure 1



gradually and deposited as stored images. They are often acquired simultaneously with the concepts (Russell, 1960).

Associations are made between symbol, sound, and concept which lead to word and meaning retrieval in the process of word recognition. The child's stored impressions from experience with the word's meaning - his contact with the word in listening and speaking - will probably serve as a cue and enable him to grasp the printed form immediately without sounding letters and parts of words. If the initial image is accurate and the stored impressions adequate, the response should normally be forthcoming and word recognition will be achieved.

DESIGN OF THE STUDY

POPULATION AND SAMPLE

The research sample was obtained from four classrooms of grade one children in three different schools in the Edmonton Public School system in April, 1968.

Procedure

The following tests were selected for administration to measure the abilities of grade one children in word recognition and related areas as postulated:

1. The Gates-MacGinitie Reading Test, Primary A, Form I, (Vocabulary) was administered by classroom teachers in June, 1968, to test ability in word recognition.
2. The Wepman Auditory Discrimination Test, Form I, was administered by the investigator in May, 1968, to test ability in auditory discrimination.
3. The California Achievement Test, Primary, Forms W and X, Test I, Section A, was administered by the investigator in May, 1968, to test ability in visual discrimination.
4. Watts' Vocabulary Test for Young Children was administered by the investigator in May, 1968, to test ability in word and meaning retrieval.

HYPOTHESES

The hypotheses to be tested were as follows:

Hypothesis 1

The ability of grade one children in word and meaning retrieval on Watts' Vocabulary Test for Young Children is not related to their ability in word recognition on the Gates-MacGinitie Reading Test.

Hypothesis 2

The ability of grade one children in word and meaning retrieval on Watts' Vocabulary Test for Young Children is not related to their ability in auditory discrimination on the Wepman Auditory Discrimination Test.

Hypothesis 3

The ability of grade one children in word and meaning retrieval on Watts' Vocabulary Test for Young Children is not related to their ability in visual discrimination on the California Achievement Test.

Hypothesis 4

The correlation between scores on the Gates-MacGinitie Reading Test and scores on Watts' Vocabulary Test for Young Children is not significantly different from the correlation between scores on the Gates-MacGinitie Reading Test and scores on the Wepman Auditory Discrimination Test.

Hypothesis 5

The correlation between scores on the Gates-MacGinitie Reading Test and scores on Watts' Vocabulary Test for Young Children is not significantly different from the correlation between scores on the Gates-MacGinitie Reading Test and scores on the California Achievement Test.

Hypothesis 6

The correlation between scores on the Gates-MacGinitie Reading Test and scores on Watts' Vocabulary Test for Young Children is not significantly different from the correlation between scores on the Gates-MacGinitie Reading Test and the combined scores on the Wepman Auditory Discrimination Test and the California Achievement Test.

The raw scores obtained by grade one pupils on designated tests provided data for statistical analysis of the relationship between ability in word and meaning retrieval and ability in word recognition. Similarly, the raw scores on tests for auditory discrimination and visual discrimination were used to compare the relative significance of these skills with word and meaning retrieval as components of word - recognition ability.

LIMITATIONS OF THE STUDY

It is conceivable that an individual oral test might have provided a more accurate measure of ability in word recognition at the grade one level, but this was not possible in the present experiment.

It is also recognized that generalizations based on the results of the tests used in the present study are limited by the validity of the instrument used and the sample to which it was applied.

Summary

In this chapter the topic of the investigation was classified as a problem in the retrieval of words and their meanings from printed symbols. The problem was related to the theory of perception as an aspect of the word recognition process. The purpose of the research was stated and the design of the study was outlined.

PROCEDURES USED IN REPORTING THE STUDY

The description of this study will be developed in the following manner:

Chapter II A Review of Related Literature

Chapter III The Experimental Design

Chapter IV Analysis of Data and Interpretation

Chapter V Summary of Findings, Conclusions, and Implications

CHAPTER II

A REVIEW OF RELATED LITERATURE

Initial Word Identification in Word Recognition

Authorities on reading agree that a major function of reading instruction in the primary grades is to develop in children an ability to identify new words, and a facility in the recognition of familiar and partly-known words. . The complex nature of this task has undoubtedly been responsible, in part, for the series of instructional methods employed over the years. Since the days of the spelling approach, the series of methods has progressed through the whole word approach, the phonetic emphasis, the sentence emphasis, to the modern composite method which includes word form, context, and phonetic and structural analysis as aids in word identification.

Recently, there has been a trend toward specialization on the one hand and economy on the other in methods advanced by educators. Strang, McCullough, and Traxler (1967) have outlined the approach to beginning reading upheld by some of the current linguists and reading authorities. Each is concerned with the development of early word recognition and the subsequent ease of transfer to independent reading. As specialists in the field gain knowledge of the reading process, more and more emphasis appears to be placed upon early diagnosis of potential reading disability problems and their remediation. Meanwhile, admonitions are frequent regarding time spent on skills already possessed by the children. Bond and Tinker (1967) have emphasized a balance between the establishment of word-recognition techniques and the development of meaning vocabulary. At the

same time, they stress the need for a flexible set of skills to be used only wherever and whenever necessary.

We are reminded by Dechant (1964) that the same approach to teaching reading "will elicit different reactions from different children, and even from the same child at different times (p. 61)". The problem, then, appears to be one of deciding when specific skills should be taught to particular students. This matter has led to considerable controversy during the last decade concerning the nature and efficacy of reading readiness programs for beginning readers. However, it is apparent from literature that visual and auditory discrimination skills are regarded as major factors in initial word identification, and are closely related to readiness for reading.

Harrington and Durrell (1955) concluded that auditory and visual discrimination of word elements seem to be more closely related to word recognition than is mental age, which frequently has been used as almost the sole criterion of reading readiness. This observation was based on the results of tests administered to 500 primary children in Boston. Initially, the children were matched as to visual discrimination, phonic ability, and mental age, but one child in each pair was superior in auditory discrimination. It was found that, by the end of the second grade, superiority in auditory discrimination resulted in a mean difference of eighteen words on the reading vocabulary test used.

In another part of the experiment, the children were matched for auditory discrimination, phonic ability, and mental age, but this time with one of each pair superior in visual discrimination. Superiority in visual discrimination resulted in a mean difference of

thirty-two words at the end of grade two. Superiority in phonics resulted in a mean difference of thirty-three words. However, a mental difference of a year and a half produced a mean difference of three words in reading vocabulary.

The authors decided that most children starting grade one have the necessary requirements in listening and speaking vocabulary for beginning reading. However, they concluded that in order to acquire a reading vocabulary, beginning readers require skill in visual and auditory discrimination as well as in phonics.

An earlier study by Sister Nila (1953) indicated that the four factors related to readiness for beginning reading were auditory discrimination, visual discrimination, range of information, and mental age, in that order.

THE ROLE OF VISUAL DISCRIMINATION

Durrell and his associates have conducted considerable research in the field of visual discrimination. They report that the knowledge of letters and the ability to identify sounds in words are more closely related to growth in word recognition than are intelligence scores (Durrell, 1958). However, in his summary of four studies involving more than 2,000 first-grade children, Durrell (p.5) indicates that certain forms of visual discrimination are not useful. He sees no benefit to beginning readers in the matching of non-word forms and pictures as preliminary instruction for letter and word recognition. This theory is supported by Fries (1962) who contends that the first set of recognition responses to be developed should be letters of the alphabet identified as contrasting shapes. He suggests that individual

letters are the most important cues in word identification.

In a recent experiment by Wheelock and Silvaroli (1967) a significant difference was found between kindergarten children who had received training in the identification of capital letters and those who had not. The authors concluded that while learning to make responses the children were also learning to attend.

Shea (1968) conducted a study involving grade one children who had attended school for a period of four months in which she sought to determine the relationship between their ability in visual discrimination and word recognition. A visual discrimination test composed of words that were similar in configuration and letter components was administered. The word recognition test was based on vocabulary from preprimers and primers of two basal reading series. A substantial relationship was found to exist between achievement on the visual discrimination test and the word recognition test. Shea concluded that children in the lower quartiles on the visual discrimination test should be given extensive training in visual discrimination before reading instruction is started.

It is apparent from literature that skill in visual discrimination is a requirement for initial word identification for beginning readers. It also appears that this skill is learned. Smith and Dechant (1961) are of the opinion that ability in visual discrimination can be improved to some degree by direct training and that this type of training constitutes a major responsibility of the schools. Heilman (1961) agrees that, although visual discrimination is to a degree developmental, the skill can be 'sharpened' through experience and practice (p.46). Tinker and McCullough (1962) feel that children

will improve rapidly in visual discrimination if they are given proper instruction.

It seems reasonable to conclude that the school must provide as much training and experience in visual discrimination as proves necessary, and, that the requirements for individual children will vary.

THE ROLE OF AUDITORY DISCRIMINATION

Research on auditory discrimination as it applies to initial word identification is much less extensive than that for visual discrimination. It is a common assumption that children who hear adequately and understand what is said to them, will be able to discriminate between word sounds and attack new words through phonics.

By the time a child enters school he has gained considerable skill and ability in distinguishing between sound patterns. Differences between ordinary sounds in his environment are readily detected. Although many children will have learned to distinguish quite well the likenesses and differences in many word sounds through listening and talking, it is doubtful that all children have learned to distinguish all the slight differences in sound needed in beginning reading. Cole (in Dechant, 1964) states that "the average six-year-old is unable to distinguish consistently between the sounds of g and k, m and n, and p and b (p.143)."

Tinker and McCullough (1962) feel that skill in distinguishing auditory patterns is extremely important in learning to read. Some children will need training more than others, but all will profit from some practice prior to and during beginning reading.

It is the opinion of Wepman (1960) that ability in auditory discrimination develops sequentially through the levels of acuity, understanding, and retention. Unquestionably, each of these perceptual levels plays an important part in word identification. Wepman (1961, p.p. 245-247) states, however, that good hearing is not automatic, but rather 'an alerting response', and that young children must learn how to listen.

To be able to speak correctly, a child must not only understand the meanings of words, but he must be able to hear exact phonetic patterns. Development progresses from reactions to gross differences in sound in infancy, to the ability to make finer discriminations in early childhood.

Wepman (1960) found from clinical experience that some children were unable to make fine aural discriminations before the age of seven or eight. He devised his Auditory Discrimination Test which was administered in a number of studies and subsequently became standardized (Wepman, 1960). He found that, with intelligence held constant, about twenty - seven per cent of eighty children in grade one showed inadequate auditory discrimination and had reading scores below the level of children with satisfactory auditory discrimination.

Dechant and Smith (1961, p.p.101-102) have reviewed three studies, each indicating growth in auditory discrimination during the first grade:

Olson (1958), studying 1,172 grade one children found that September tests measuring knowledge of letter-names predicted February success in reading better than did mental age, but that February tests of various phonic abilities showed highest correlation with

reading achievements.

Gavel (1958) studied 1,506 first grade children. She found that the best predictors for June achievement were the results of September tests on writing letters dictated, naming letters, identifying letters names, and learning rate for words. The February tests that predicted achievement in June with correlations higher than 60 included hearing of sounds in words, applied phonics and ability to give the sound of lower-case letters.

Research by Lineham (1958) compared an experimental group of 314 grade one pupils with a control group of 300, both groups chosen on a random basis. The experimental group was given phonic training with emphasis on letter knowledge, ear training, and word meaning before using the sight method for learning words. The sequence of training for the control group was the reverse. On tests administered at mid-year, and again at the end of the year, the experimental group was superior in reading, in applied phonics, in hearing sounds in words and in knowledge of letters. Some of the success of the experimental group can conceivably be attributed to the highly structured word - study program. However, the authors make the point that training in auditory discrimination should be given early in the child's reading program.

There is currently considerable controversy over the amount of formal instruction to be attempted in reading readiness in the kindergarten program. Connell (1968) found that many first-grade teachers attempt to crowd auditory discrimination of the sounds of the language and alphabet writing into a six- or eight-week period at the beginning of the year. She thinks that these basic learnings

should be spread over the year preceding first grade when research indicates that readiness is at its peak (p.54). Then the synthesis of sight and sound can be concentrated upon in the first grade. This theory would seem to require a well-organized listening program for kindergarten.

Evidence from literature and research indicates that auditory discrimination is a major factor in initial word identification. Like visual discrimination, auditory discrimination, appears to be developmental, and can to some extent be improved by direct training.

WORD AND MEANING RETRIEVAL IN WORD RECOGNITION

It has been indicated in Chapter I that retrieval of a word and its meaning in word recognition is dependent upon the ability of the child to relate the equivalent of the word obtained through initial word identification to the corresponding concept present in his stored image of the word. According to Johnson (1965) the perceptual act of word recognition is not complete until the meaning of the word is apprehended. She regards the perceptual act as a three - stage process. First, the visual sensations received are identified as being representative of a word, then, as representative of speech sounds, and, finally as a symbol of the intended meaning. To reach the final stage, the reader obviously manipulates the present sensory data and images from past experiences in the context of the word's present setting until he has arrived at a meaning which is satisfactory to him. This, she contends, is by no means a mechanical process, but one in which considerable thinking is involved. In some cases, there is almost immediate, unconscious recognition of a familiar word, while in

other instances a considerable amount of effort may be required to complete the perceptual act.

Smith and Dechant (1961) would appear to agree. They state that "perceptual development, although certainly dependent in part on the accuracy of the sensory mechanism, is dependent also on the child's ability to profit from what he hears and sees and upon the richness and variety of the experiences to which he is exposed (p.102)".

Bond and Tinker (1967) have classified the skills necessary for word recognition into six basic learnings. Among these are devices used by most beginning readers, such as visual form clues, visual synthesis and auditory blending, context clues, and the association of appropriate meanings with printed symbols. The authors cite a study by Bond and Clymer in which more than four thousand children were measured in the basic learnings of word recognition. The study indicated that competency even in all of the learnings was "no guarantee that the child would be a good reader (p.308)". It is inferred that the difficulty experienced might be due to failure on the part of the child to identify the word as one he knows in his listening and speaking vocabulary and consequently he is unable to perceive its meaning.

CONCEPT FORMATION AS RELATED TO

WORD AND MEANING RETRIEVAL

Perception of the meaning of a word usually involves more than auditory and visual discrimination and sound-symbol associations. The quality of one's perception is also affected by the ideas one has concerning it. Russell (1960) says that "percepts, memories, and

images are combined into concepts (p.329)." It might be assumed, then, that words do not represent objects but rather concepts that the mind has formed of them. Words permit the writer to share experiences with the reader. The reader, in turn sees or experiences written messages through the symbols that stand for them and evoke his perception of them.

Strang, McCullough, and Traxler (1967) have described the cognitive process of perception in reading by which visual impressions become meaningful in the light of the reader's past experience and present needs. When perceptions are grouped into larger patterns that include classes or categories, concepts are formed. Concepts screen impressions as they enter the mind so that the reader is not compelled to deal with a confusing diversity of separate impressions. The relationship between perception and conceptualization is reciprocal in nature. "Perceptions are synthesized into concepts; concepts aid in the interpretation and organization of perceptions (p.15)".

The authors are of the opinion that there is a positive relationship between conceptual ability and reading proficiency. They think that children of normal intelligence who fail in reading in the upper primary grades may often be deficient in the ability to form concepts.

A review of the literature indicates that children generally advance in their ability to conceptualize in proportion to their experiences. Their ability to conceptualize generally improves as they grow older. Facility in conceptualization is developed through previous experience in concept formation. The cultural influence is also pertinent. As the child grows older his concepts usually become

more similar to those of the people with whom he associates.

Research also indicates that the lower the mental age of the child, the more specific his response to a word tends to be. Younger children tend to perceive words as concrete and older children react more to the abstract features of word meaning. Younger children interpret words on a concrete level and emphasize particular aspects, while older children categorize and stress class features.

Verbal learning and language behavior have been a focus of interest for considerable experimentation and research. As early as 1917, Thorndike (in Russell, 1961), following his analysis of reading errors in paragraph reading concluded that "reading is reasoning (p.106)."

Cronbach (1942, p.p.206-217) analyzed behavior involved in understanding a word into five categories. These categories were based upon the child's ability to: generalize concerning the word's meaning; recognize the applicability of a word to its referent; use words with breadth of meaning; use words with precision of meaning; and, make use of the word's concept in thinking and discourse.

A study by Braun (1963) hypothesized that concept formation rather than intelligence was the factor most closely related to reading ability. Under-achievers and over-achievers in reading were selected from boys in grades three, five, and seven. Groups were equated on the basis of intelligence, using four subtests of the Wechsler Intelligence Scale for Children. A test for knowledge of concepts was devised, using verbal responses to pictures. Correlations were computed on reading and intelligence, reading and ability in concept formation, and, intelligence and concept formation.

Braun reports that one of the most interesting results of her experiment was the "demonstrated lack of relation between concept formation and intelligence (p.678)". She states that her experiment supports the findings of the Thorndikes (1942) and Jay (1950), that concept formation ability is closely related to reading. She concluded that this ability is either a separate intellectual process, or, it is a component of intelligence given little weight in existing intelligence tests.

Evidence seems to indicate that learning to read requires not only the ability to make sensory responses, but also, the elements considered as necessary to thinking. The child's ability to understand what he reads depends to a great extent upon his ability to conceptualize. It appears conceivable that this ability could also be a requirement for word and meaning retrieval in word recognition. The ability to form concepts should provide the child with additional cues to assist in the process of initial word identification, and to promote the availability of the word for the required response. A well-stocked pool of concepts, labelled and readily available, should be an asset in quick and accurate word recognition.

In summary, then, it is evident that the child learning to read, brings with him a varied background of concepts, meanings and words acquired in his world of oral communication. He must now learn to relate his ideas and their verbal symbols to the printed symbols of speech. He also possesses a degree of efficiency in such intellectual functions as deliberate attention, ability to note likenesses and differences, logical memory, ability of abstraction, and so on. The degree to which he can conceptualize appears to have some bearing on the availability of the word for him and upon his ability to retrieve it when the printed

symbol is presented in reading. The facility with which he can form concepts should reflect to some extent his ability in word and meaning retrieval in word recognition.

LANGUAGE FLUENCY AS RELATED TO WORD AND MEANING RETRIEVAL

Much of the literature written on concept formation during recent years includes references to the work of Jean Piaget. He used the language of the child as a means of observing his thought processes. Piaget's research demonstrates the difficulty of studying children's concepts except as functions of speech.

Vygotsky (1962) summarized many studies concerned with intellectual development and language. He concludes that thought and language are interdependent. "The relation of thought to word is not a thing but a process, a continual movement back and forth, from thought to word and from word to thought (p.125)." The thought comes into existence through words, finding form and reality in speech. And speech evolves from the process of bringing thought to a logical conclusion.

Carroll (1964) thinks that "one of the most pervasive ways in which people differ is in their knowledge of vocabulary and the structure of the English language (p.67)". He contends that verbal knowledge is highly correlated with the richness, variety, and extent of an individual's concepts to the degree that such concepts are symbolized by words.

Teachers are aware that the language acquired by the child reflects the models he has had to imitate and the variety of situations which he has experienced. Dale (1962) sees the child's vocabulary as "a vast filing system for his experiences (p.34)". The richer his experiences with words, the more effectively will he be able to abstract pertinent characteristics from them and arrive at generalizations about them

as to form and meanings. In turn, the richness of his ideas depends upon the flexibility and range of language which has been acquired. As skills in language develop, language plays an increasingly significant role in thinking.

Language and thinking share similar basic processes. Dechant (1964) states that the ability to form concepts, to abstract, and to categorize is a common requirement for higher levels of language and for thought. For this reason he feels that language and thought can be regarded as the same process.

Smith and Dechant (1961) indicate the vital role of language ability in readiness for reading. The close relationship of language acquisition to auditory and visual discrimination is acknowledged. They state that not only is language essential for hearing, seeing, and taking meaning to words, it is also the very foundation of the thinking-process. If we accept this theory, we can regard printed symbols as triggers that release the thought process and set it in action. Since the ability to interpret and react to printed symbols is only a step removed from interpreting and reacting to spoken symbols, the need for attention to oral-language growth appears obvious. Strang, McCullough, and Traxler (1967) regard facility in oral expression as essential to success in beginning reading.

Much of early research in language fluency appears to have been concerned with older children. A factorial study by Taylor (1946) of three groups of high school seniors in Chicago, led him to believe that verbal versatility in writing is the ability to express essentially the same idea by means of several different words. He concluded that this ability might also operate in the expression of an idea orally. He

states that his conclusion was based on tests including those used by the Thorndikes (1942) to which reference was made earlier in Braun's study (1963).

That verbal fluency manifests itself early in the language development of the child is well illustrated by the recent longitudinal study done by Loban (1963). He found that the subjects who read well by the end of grade three were the subjects who ranked high in oral language for the kindergarten and first three years of study. In discussing fluency with words, Loban states, "The ability to find words with which to express oneself - and to find them readily - is normally one mark of success with language (p.29)."

This facility with words, so closely related to thought and concept formation as indicated by Vygotsky (1962) and Carroll (1964), would appear to have been a pertinent factor in the success in reading in Loban's study. It might also have been a determinant in the retrieval of word and meaning in word recognition by his subjects.

Russell (1961) acknowledges that word recognition is a combination of "perception on the one hand and verbal learning and language behavior on the other (p.105)". He suggests that increasing familiarity with a word tends to reduce the necessity for the child to rely entirely on auditory and visual cues in word recognition.

Bond and Tinker (1967) suggest that a child's inability to anticipate words met in reading can be a handicap in word recognition. Verbal knowledge and versatility with words should result in a reduction of auditory and visual cues required in the recognition of printed symbols. It seems reasonable to assume, then, that fluency with words could be an asset in word and meaning retrieval by grade one children. And the

facility with which they retrieve words and their meanings might be a factor in their ability to recognize words.

Too often the word recognition process is mistakenly regarded as a mechanical one which is separate from the thought-process in the reading act. It is the premise of this study that such a split does not in reality occur.

Thinking, which involves the ability to abstract, categorize, and generalize, is generally regarded as a requirement for the successful recognition of words. Since the thought process must deal with ideas already in the mind, it becomes apparent that the ability to comprehend, organize, and apply ideas on a spoken level is of utmost importance. Therefore, the need for attention to oral language growth becomes a primary concern.

It is acknowledged that auditory and visual discrimination are major factors in initial word identification. Further, these abilities can be improved by training, and they are closely related to initial success in reading. However, the significance of the ability to use cues from a knowledge of vocabulary, in the context of word recognition, appears to have received relatively less attention in research. The facility with which words and their meanings are retrieved on an oral vocabulary test might indicate that ability in word and meaning retrieval compares favourably with skill in auditory and visual discrimination as an essential component of word recognition ability.

The present study was planned to investigate the postulated relationship of ability in word and meaning retrieval to word recognition ability in grade one children. It was also designed with a view to determining the significance of this relationship in comparison to the contributions of auditory and visual discrimination in the word recognition process.

CHAPTER III

THE EXPERIMENTAL DESIGN

In this chapter, selection of the sample, and the testing instruments and procedures will be described. The analysis of the data will also be discussed.

THE SAMPLE

Three urban schools were designated by the central office of the Edmonton Public School system for this study. The socioeconomic status category for each school was determined according to the classification adopted by the Edmonton Public School Board.

School A, representing an area of the predominately semi-skilled, had three grade one classrooms with a total of 79 pupils. Ten students were selected randomly from each classroom, yielding a group of thirty subjects for study. School B which represented an area of the skilled, categorically, had four grade one classrooms. Seven subjects were randomly chosen from each of two of these classrooms, and eight from the remaining two classrooms. Thus, a total of 30 subjects was obtained from a population of 95 first grade students in this school. School C represented an area predominantly professional. There were three grade one classrooms with a total grade one population of 81 pupils. As was the case with school A, ten students were randomly selected from each of the classrooms, yielding 30 subjects for study. In this way, a sample of 90 students (44 girls and 46 boys) was obtained. Ninety children represented three socioeconomic areas in an urban school system with a total

population of 6376 grade one students. No subjects were lost during the period in which the experiment was conducted, and scores were obtained for each in the series of tests.

THE TESTING INSTRUMENTS AND PROCEDURES

The following tests were administered to measure the ability of each of the subjects in the sample in visual discrimination, auditory discrimination, word and meaning retrieval, and word recognition.

1. The California Achievement Tests, Lower Primary (Forms W and X), Test I - Section A, a group test administered in June, 1968.

The California Achievement Tests Lower Primary Complete Battery (Forms W and X) were designed to evaluate, measure and diagnose school achievement. The series is composed of tests of skills in reading, arithmetic, and language. The items in the 1957 edition were first rated for balance and appropriateness by competent curriculum and achievement test specialists. The separate elements of the battery were then integrated to provide meaningful and useful results.

Provision was made for a sequential testing program from one level to the next in the standardizing of both the 1957 edition and the 1963 revision. The achievement data used in the scaling procedures to establish norms were obtained from a population sample representing a composite of the varied curricular influences present throughout the United States.

Reviews of the 1963 revision of the California Achievement Tests were unavailable. However, Buros (1959), in reference to the

1957 edition of the test, indicates that there is a high degree of construct validity reflected by correlation coefficients between scores on this test and scores on other standardized achievement tests.

The Reading Vocabulary Test consists of four parts - Word Form, Word Recognition, Meaning of Opposites, and Picture Association.

The Word Form - Section A portion of the Reading Vocabulary Test is made up of twenty - five items each consisting of two words separated by a dotted line. If the two words are identical (except in type face), the pupil marks S (for same) on the line between them; if they are different words, he marks D. Various words and forms are used in these items, so that the diagnostic analysis may be divided in the following manner: identical or different words, lower case; identical or different words, capitals; and, identical or different words, mixed forms (e.g. one word of the items is in capitals, the other in script). Also included are test situations in which the second word is a reversal of the first (e.g., saw - was).

The manual states that the test is useful in determining specific problem areas in identifying words, such as incomplete knowledge of the alphabet, lack of visual discrimination, and reversals.

Findings in previous studies suggest that by the end of grade one most children's skills in visual discrimination are becoming increasingly mature. For this reason, the investigator felt that the validity of the test results would be improved if the material could be made more challenging. Therefore, the twenty five items on each of Form W and Form X, Test I, Section A of the California Achievement

Test were combined to make a test of fifty items. To preserve the uniformity of format of each of the original tests, items from each test were arranged in sequence with the first item from Form X directly following the first item from Form W, and so on. The allotment of testing time was doubled, as was the possible raw score.

A pilot study was conducted to determine whether or not problems might be encountered due to the size of type and the use of script in some of the test items. The investigator concluded that no further adjustments were required and plans were made to proceed with the testing of the students in the sample.

The test was administered by the investigator according to directions in the manual for group instruction, to all pupils in the classroom in which subjects of the experiment were enrolled. The number of correct responses obtained by each of the subjects comprised his raw score in visual discrimination. The tests were scored by the investigator.

2. The Wepman Auditory Discrimination Test Form I, an individual test administered in May 1968.

This test was standardized in 1960 upon being administered to 533 unselected first, second, and third grade children in both urban and non - urban communities. It was designed to determine a child's ability to detect fine differences that exist between the phonemes used in English speech. Forty pairs of carefully selected words are presented orally by the examiner to an individual child who is seated with his back to the examiner. The pairs of words may be identical or differ in one sound, either initially, medially, or

finally. The child indicates verbally or by a motion of the head, whether he recognizes similarity or difference, and the examiner records the responses. The test is administered individually and takes about five minutes. Scores that should be considered invalid or judged to show inadequate development at age levels from five to eight years are indicated in the manual.

Two forms of the test are available. Each has been found useful, particularly in lower elementary grades, in selecting children who are slower than their peers in developing auditory discrimination. Administration to five -, and six-year-olds permits the detection of those likely to experience difficulty in learning to use phonics. The test is also useful for older children in the diagnosis of reading and speech difficulties.

In test - retest administration of this instrument, a coefficient of reliability of .91 (N=119) was obtained. Validation studies are also reported in the manual. Buros (1965) recommends the Wepman Auditory Discrimination Test Form I as "a quick, inexpensive, easy to score, and accurate test of auditory discrimination (p.941)".

The investigator administered this test according to instructions in the manual for an individual testing situation.

3. The Gates-MacGinitie Reading Test Primary A Form I vocabulary, a group test administered in June, 1968.

The Gates-MacGinitie Reading Tests comprise a new series replacing Gates Primary and Advanced Primary Reading Tests and the Gates Reading Survey. According to the manual, the content of the new series is more up to date, more varied, and more typical of reading

material for children. Standardization was carried out in communities on a carefully selected basis of geographic location, size, and socioeconomic level to assure a representative sample of pupils.

The Gates-MacGinitie Reading Test Primary A level is intended for use in grade one. Two equivalent forms of Primary A are available (Forms 1 and 2). Each consists of two parts: Vocabulary and Comprehension.

The Vocabulary Test samples the child's ability to recognize isolated words. It consists of 48 exercises, each of which contains four printed words and a picture illustrating the meaning of one of the words. The child's task is to circle the word that best corresponds to the picture. The first exercises are composed of easy and commonly used words grouped with words only slightly similar or confusing. Gradually the words become less easy and common, and are presented with words more similar in details and general appearance.

The Vocabulary Test can be administered to groups. The time allowance is 15 minutes and the raw score represents the number of correct responses.

The Technical Manual provides considerable information concerning the statistical characteristics of all the tests in the battery. Reliability coefficients, the indices for the accuracy of scores obtained, are recorded as both alternate-form reliability coefficients, and, split-half reliability coefficients. The alternate - form reliability coefficient of .86 reported for the Vocabulary Test was obtained by administering one form of the test on one day, and a second form on another day. The split-half reliability coefficient of .91 for this test disregards major sources of test error and is

therefore higher than the corresponding alternate form reliability coefficient.

The Vocabulary Test (subtest of the Gates-MacGinitie Reading Test Primary A, Form I) was administered by classroom teachers as part of the regular grade one testing-program in the Edmonton Public Schools in June 1968. Raw score data was obtained from individual teachers by the investigator.

4. Watts' Vocabulary Test for Young Children (adapted), an individual test administered in May, 1968.

Watts' test is found in his book The Language and Mental Development of Children (1960). It consists of one hundred questions which the author asserts an average child of eight and a half years should be able to answer. Typical questions are those in which the examiner asks what he is touching when putting his finger on his nose, eyes, eyebrows, eyelids, etc.

Watts is of the opinion that the hundred words required as responses would be found fairly evenly spread through a list of the six thousand commonest English words. The answer-words demanded in the test have been checked by E. L. Thorndike's Teacher's Word Book. Questions 1-50 deal with what is seen, while questions 51-100 deal with what is merely described.

The test must be administered individually and orally. Watts states that it can be used to measure the vocabularies of children from three and a half years of age and upward. The form of words employed in questioning and the suggested action (where indicated) may be occasionally varied in order to elicit the required answer if

it is misunderstanding, and not ignorance that is preventing the child from making a response. The number of questions asked at a sitting is at the discretion of the examiner who will base his decision on the age and mental maturity of the child. The number of correct responses to questions will comprise the child's raw score.

Watts has provided a table of norms of performance (p.50), indicating the percentage of right answers for age-groups from four to eight years, as well as estimates of the size of vocabulary for each group. These statistics were compiled from test results obtained in a study involving British children.

Watts' Vocabulary Test was adapted for use by Loban (1963) in his longitudinal study of 338 children from kindergarten through high school. The test was administered to each subject during the kindergarten year. It became a partial basis for Loban's selection of the two groups of subjects at the extremes of language ability in his research.

Loban made some alterations in Watts' test. British items such as teahouse were changed to restaurant or cafe. The investigator made similar changes in other items such as the names of coins, street markings, and so on. A pilot study was conducted to familiarize the examiner with testing procedures and to ascertain the suitability of individual items in the adapted form of the test.

The revised version of Watts' test was then administered to each of the subjects in the sample individually and orally by the investigator. Responses were taped and analyzed for scoring. The number of correct responses provided the raw score to be used as a measure of fluency in word and meaning retrieval for each of the

subjects.

THE ANALYSIS OF DATA

The raw scores obtained from the series of tests were used in the following statistical analysis:

- (1) Mean scores and standard deviations were calculated.
- (2) Coefficients of correlation were computed to determine the degree of relationship between raw scores on the word recognition test and raw scores on tests in visual discrimination, auditory discrimination, and word and meaning retrieval. The Pearson product - moment coefficient of correlation was calculated in each case.
- (3) Tests were applied to the correlation coefficients to determine their significance from zero. The significance of differences between correlation coefficients was found by calculating t scores programmed in M A T language on the IBM system. The level of significance of these scores was obtained from Ferguson (1966) Table B.

SUMMARY

In this chapter, the method of selection of the sample, the testing instruments used, and the procedures followed were described. The statistical treatment of the data was also outlined.

CHAPTER IV

ANALYSIS OF DATA AND INTERPRETATION

The purpose of this chapter is to examine the following aspects of the data provided by the testing program:

- I Performance on the Tests of Initial Word Identification.
- II Performance on the Word and Meaning Retrieval Test.
- III Performance on the Word Recognition Test.
- IV Relationship Between Word and Meaning Retrieval and the Other Variables.
- V Comparison of Correlations Between Word Recognition Ability and Each of the Other Variables.

I PERFORMANCE ON THE TESTS OF INITIAL WORD IDENTIFICATION

Scores on the tests of auditory and visual discrimination indicated the ability of the subjects in initial word identification. Table 1 shows the possible score, mean score, and standard deviation for each of these tests.

TABLE 1

MEANS AND STANDARD DEVIATIONS OF SCORES FOR TESTS
OF INITIAL WORD IDENTIFICATION

Tests of Initial Word Identification	Possible Score	Mean	Standard Deviation
Wepman Auditory Discrimination Test	30	26.77	2.64
California Visual Discrimination Test	50	43.59	5.43

1. Auditory Discrimination Test.

On the Wepman Auditory Discrimination Test the subjects' scores vary from 15 to 30 with a mean score of 26.77. The low standard deviation indicates that the students generally performed on a uniform level. Wepman (1958) found that auditory discrimination, as measured by his test, improves as the child matures. He computed the mean error score for his subjects and concluded that seven-year-old children show adequate discrimination if they make an average of four errors on his test. The mean error score of 3.23 in the present study compares favourably with Wepman's findings.

2. Visual Discrimination Test.

The scores on the Visual Discrimination Test range from 26 to 50 with a mean of 43.59. Items for this test were drawn from the Word Form sub-section of each of two Reading Vocabulary Tests of the California battery of tests. Norms for section scores are not provided in the manual. The section profile in each of the tests is intended to assist the teacher in making a diagnostic analysis of learning difficulties. However the mean score of 43.59 with a standard deviation of 5.43 as indicated in Table 1 would seem to suggest that the subjects in the sample were generally able to discriminate among the letter components (capitals, lower case, and script) of words in the test items.

II PERFORMANCE ON THE WORD AND MEANING RETRIEVAL TEST

On the Vocabulary Test of 100 items, the subjects' scores vary from 28 to 82 with a mean of 57.60. The mean and standard deviation for this test are presented in Table 2, and the frequency distribution

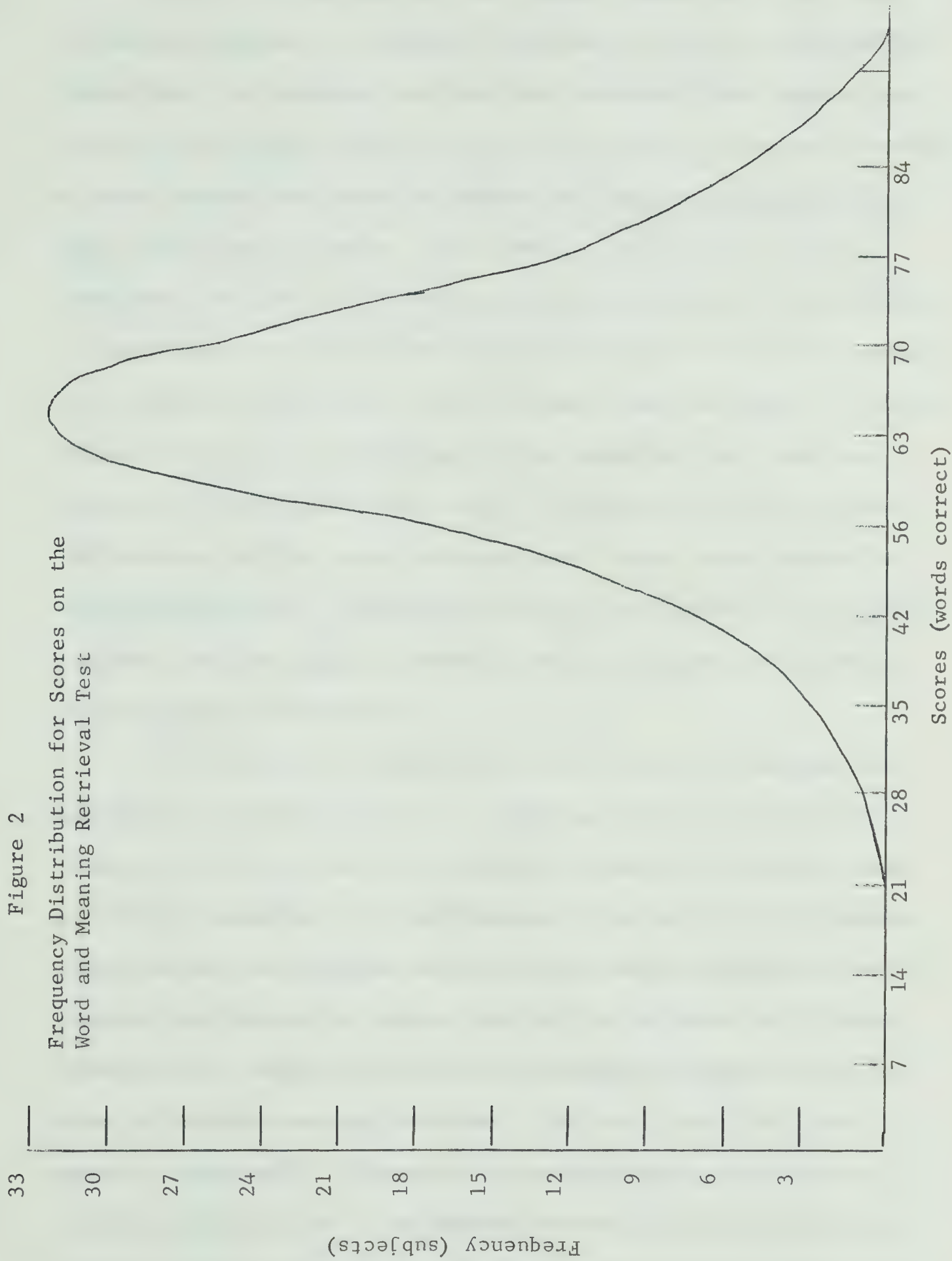
is shown in graphic form in Figure 2.

TABLE 2

MEAN AND STANDARD DEVIATION OF SCORES FOR TEST OF FLUENCY IN WORD
AND MEANING RETRIEVAL

Test of Fluency in Word and Meaning Retrieval	Possible Score	Mean	Standard Deviation
Vocabulary Test for Young Children	100	57.60	10.10

Figure 2
Frequency Distribution for Scores on the
Word and Meaning Retrieval Test



Watts, who devised the test, gives a score of 70 as a norm for British children of this age. However, he does not describe his population. He indicates that the test vocabulary does sample quite uniformly the first, second, third, fourth, fifth, and sixth thousands of most commonly used words in Thorndike's American Teacher's Word Book. Since the 100 words in his test are fairly evenly spread throughout the list of six thousand most common words, Watts considers it reasonable to estimate that the probable size of a child's vocabulary (within a 10 per cent error) is sixty times the number of items correct on the test. According to this reasoning, the grade one subjects in the present study vary in vocabulary from 1680 to about 5000 words with 3300 words as an average. Watts' study reports an estimated vocabulary of 4200 words for this age-group. It is quite possible that the subjects tested by this investigator represent a larger universe of children.

Watts shares the concern of other students of language who are aware of the misconception of equating size of vocabulary with linguistic ability. His test attempts to sample both quantity and quality of vocabulary. The performance of subjects in this research indicated that the children with large and readily accessible vocabularies found expression easier than did the children with limited vocabularies. Range and diversity of vocabulary appeared to be an asset in word and meaning retrieval. The less fluent children seemed, occasionally, to possess the concept but were unable to provide a label for it. For example, on the questions relating to cooking, where the answers demanded such terms as boil, bake, fry, roast, etc., some of these children had only one answer, "cook".

The more fluent subjects even though they were unable to provide the correct word on certain vocabulary items, usually indicated by their responses that they possessed the concepts involved.

III PERFORMANCE ON THE WORD RECOGNITION TEST

The Vocabulary section of the Gates-MacGinitie Reading Test yielded raw scores ranging from 5 to 48. Table 3 presents a mean score of 37.87 and a standard deviation of 8.97.

TABLE 3

MEAN AND STANDARD DEVIATION OF SCORES FOR TEST
IN WORD RECOGNITION

Test of Word Recognition	Possible Score	Mean	Standard Deviation
Gates-MacGinitie Reading Test Vocabulary	48	37.87	8.97

The performance of the subjects in this sample appears to reflect the achievement of grade one pupils in the Edmonton Public School system for whom a mean score of 36 was recorded for this test. The sample mean of 37.87 also compares favourably with the score of 37 for the fiftieth percentile in the Gates-MacGinitie norms. According to the manual, this represents a grade score of 2.1 for grade one pupils tested in May. On the average, the performance of the subjects in this study appears to indicate that their ability in word recognition was adequate for children completing the first grade in reading.

IV RELATIONSHIPS BETWEEN WORD AND MEANING RETRIEVAL AND THE
OTHER VARIABLES

Correlation coefficients were calculated to determine the relationship between scores in word and meaning retrieval and measures in auditory and visual discrimination, and word recognition. These correlations are presented in Table 4.

TABLE 4

CORRELATIONS BETWEEN WORD AND MEANING RETRIEVAL

AND THE OTHER VARIABLES

Word and Meaning Retrieval	Correlation Coefficients
Correlation with Word Recognition	.60 **
Correlation with Auditory Discrimination	.43 **
Correlation with Visual Discrimination	.35 **

* $r > .270$ is significant at .01 for 87 df

An examination of Table 4 indicates that the test for word and meaning retrieval is most closely associated with measures of ability in word recognition, having produced a significant correlation of .60. Tests for auditory discrimination and visual discrimination show a less marked though significant relationship to ability in word and meaning retrieval, yielding correlations of .43 and .35 respectively. These correlations are all significant at the .01 level of confidence.

Summary

The information presented in Table 4 shows that there is a definite relationship between the ability of the subjects in word and meaning retrieval and their ability in word recognition. It also indicates a significant relationship existing between their ability in word and meaning retrieval and their skill in auditory and visual discrimination.

V COMPARISON OF CORRELATIONS BETWEEN WORD RECOGNITION ABILITY AND ABILITY IN WORD AND MEANING RETRIEVAL, AUDITORY DISCRIMINATION, AND VISUAL DISCRIMINATION

In order to compare the relative contributions of each of the other variables to word recognition ability, t scores were obtained for correlated variables. Table 5 indicates that there was no significant difference between correlation coefficients for each of the correlated variables. The correlation between word recognition ability and word and meaning retrieval was not significantly different from the correlation between word recognition ability and any of the other variables. For the subjects in this sample, the test scores did not reveal any significant difference between variables as components of word recognition ability.

TABLE 5

SIGNIFICANCE OF THE DIFFERENCE BETWEEN CORRELATION
COEFFICIENTS FOR CORRELATED VARIABLES

Correlation of Correlated Variables	df	t	p
R ₁₂ # R ₁₃			
.60 # .59	87	.12	NSD
R ₁₂ # R ₁₄			
.60 # .44	87	1.79	NSD
R ₁₂ # R ₁₅			
.60 # .64	87	.64	NSD

.t = 1.99 is required for significance at the .05 level

R₁₂ = Correlation between Word Recognition and Word and Meaning
Retrieval

R₁₃ = Correlation between Word Recognition and Visual Discrimination

R₁₄ = Correlation between Word Recognition and Auditory Discrimination

R₁₅ = Correlation between Word Recognition and Initial Word Identifica-
tion

SUMMARY OF FINDINGS

1. Pupils at the end of the first grade experienced little difficulty in making fine discriminations in phonemes.
2. Pupils were generally able to discriminate between letter components of words in capitals, lower case, and script.

3. The norms for the oral vocabulary test were not as high as those reported in Watts' study for this age group. No attempt was made to compare norms due to the lack of information available concerning the population in Watts' sample. The scores of the grade one children in the present study indicated a wide range in ability in word and meaning retrieval.

4. The performance of the subjects in word recognition reflected the achievement of the population from which the sample was drawn.

5. The subjects' mean score in word recognition compared favorably with standardized norms.

6. Word and meaning retrieval produced a higher correlation with word recognition ability than did the tests for auditory discrimination and visual discrimination.

7. Auditory and visual discrimination combined produced a correlation with word recognition that was only slightly higher than the correlation between word and meaning retrieval and word recognition ability.

8. No significant difference was found to exist between auditory discrimination, visual discrimination, initial word identification, and word and meaning retrieval as components of word recognition ability.

Summary

This chapter has presented the mean scores for all tests administered in this investigation. Tables containing the following data were discussed:

a) Correlations between word and meaning retrieval and word recognition, auditory discrimination and visual discrimination.

b) Significance of the difference between correlation coefficients for correlated variables.

The chapter concluded with a summary of the findings.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS, AND IMPLICATIONS

The purpose of this study was to investigate the relationship between the ability of grade one children in word and meaning retrieval and their skill in word recognition. Tests were administered by the investigator in May and June, 1968 to examine the ability of the subjects in initial word identification and word and meaning retrieval. Scores for tests in word recognition skill, administered by classroom teachers in June, were also obtained. Results were used to determine the correlation of word and meaning retrieval with initial word identification and word recognition.

This chapter presents the conclusions reached from the interpretation of findings of this study. Implications resulting from these conclusions are discussed. Suggestions for further research are also presented.

HYPOTHESIS I

The ability of grade one children in word and meaning retrieval on Watts' Vocabulary Test for Young Children is not related to their ability in word recognition on the Gates-MacGinitie Reading Test.

The correlation between word and meaning retrieval and word recognition was positive at the .01 level of confidence. On the basis of this evidence, Hypothesis I is rejected.

The ability to retrieve words and their meanings does make a contribution to the skills required in word recognition. The children who ranked high in word recognition also tended to exceed the mean

in word and meaning retrieval. The findings in this study parallel the results of investigations made by Loban (1963) who found that vocabulary and proficiency in language were related. He concluded that competence in spoken language was basic for success in reading. The children in this study who appeared to be more fluent on a test of word and meaning retrieval also scored higher on the test in word recognition than the children with more limited ability in language.

It seems likely that the children who were more proficient in word and meaning retrieval possessed greater ability in concept formation than did children who had difficulty in retrieving words and meanings.

Russell (1960) summarized research on concept formation and found that children of any age vary widely in the concepts they know. He thinks that a close relationship exists between concept development and general vocabulary growth.

Braun (1961) concluded from her study that growth in reading depends upon increased ability in concept formation. She also speculates that various stages in reading tap correspondingly advanced stages in the concept formation process. She feels that children reach a plateau in concept formation ability at the end of the early elementary years. Beginning with the third grade, an increasing need for clear concepts becomes necessary for reading success.

If we accept the theory that concepts are ideas that must be symbolized to be effectively communicated, then it would seem logical to assume that vocabulary has an essential relationship with the conceptual processes. Concept formation development will then be seen as a gradual process in which concepts grow from simple to

complex mental constructs, evoked and labelled by symbols which are usually words.

Evidence of the knowledge of a concept will be dependent upon the word associated with it. The word is devoid of meaning if the child has no concept for it. Conversely, the word for which he has numerous associations will be rich in meaning. Concept formation ability, then, appears to be a function of vocabulary - concept relationships. It seems reasonable to conclude that the subjects in this study who were more proficient in word and meaning retrieval, and had larger vocabularies, also had greater ability in concept formation.

HYPOTHESIS II

The ability of grade one children in word and meaning retrieval on Watts' Vocabulary Test for Young Children is not related to their ability in auditory discrimination on the Wepman Auditory Discrimination Test.

Hypothesis II is rejected on the basis of a correlation of .43 between word and meaning retrieval and auditory discrimination. The ability to retrieve words and their meanings is related to skill in auditory discrimination.

It is believed that a young child hears speech in sound patterns which convey to him complete statements. At first he may experience difficulty in isolating the meaning of a particular word from the rest of the sentence because it is submerged in context. The more accurately he hears the exact phonetic patterns and the better he understands the meanings of the words, the more readily he will

acquire correct speech which is basic to initial success in reading.

Ability in word and meaning retrieval and skill in auditory discrimination appear to share a reciprocal relationship in the perceptual process. Almost without exception, the children in the present study who performed less than adequately in auditory discrimination also scored below the mean on the test for retrieval of words and their meanings. The subjects who did well in auditory discrimination generally scored well in word and meaning retrieval. It seems logical to conclude that perceptual development is dependent in part on the accuracy of the sensory mechanism, but that it is also dependent on the child's ability to profit from his experiential background in language.

HYPOTHESIS III

The ability of grade one children in word and meaning retrieval on Watts' Vocabulary Test for Young Children is not related to their ability in visual discrimination on the California Achievement Test.

Hypothesis III is rejected on the basis of a correlation of .35 between word and meaning retrieval and visual discrimination. The ability of grade one children in retrieving words and their meanings is related to their skill in visual discrimination.

We know that the ability to discriminate between similarities and differences in word forms does not in itself ensure word recognition. The function of symbols in reading is to evoke meaning, but the meaning can only be accurate to the extent that the visual

stimulus is correctly received. And meanings themselves spring from the reader's mind as he brings appropriate concepts to the symbols in terms of his own experience. Studies have shown that the greater the child's experience the greater are his possibilities for success in reading.

In the present study, the relationship between visual discrimination and word and meaning retrieval was not as marked as the relationship between auditory discrimination and word and meaning retrieval. However, the individuals who scored well above the mean in the retrieval of words also appeared to have reached a mature level in visual discrimination.

Smith and Dechant (1961) think that language ability is closely related to both auditory and visual discrimination, and, that language development plays an important role in reading readiness. The subjects in this study with poor scores in visual discrimination could conceivably have benefitted from a well planned program in oral language prior to formal instruction in reading.

An inadequate performance in visual discrimination in beginning readers is often attributed to lack of maturational readiness. As Sartain (1965) has indicated, there is a tendency on the part of some teachers who hold this view, to provide a readiness program that is not sufficiently challenging and stimulating for the children who do not readily learn to read. Sartain infers that much of the teaching intended to train a child in noting similarities and differences in word form will be wasted if it is practised in isolation from his oral language experiences. It appears, then, that a well planned program in reading readiness should recognize that ability in visual

discrimination will be attained only to the extent that the graphic symbols in reading relate to the language the child has heard, understood, and made his own.

HYPOTHESIS IV

The correlation between scores on the Gates-MacGinitie Reading Test and scores on Watts' Vocabulary Test for Young Children is not significantly different from the correlation between scores on the Gates-MacGinitie Reading Test and scores on the Wepman Auditory Discrimination Test.

The t value of 1.79 indicated in Table 5 does not warrant the acknowledgement of a significant difference between word and meaning retrieval and auditory discrimination as components of word recognition ability. On the basis of this finding Hypothesis IV is upheld.

The slightly higher correlation between word and meaning retrieval and word recognition as compared with auditory discrimination and word recognition could conceivably indicate that the subjects in this study relied more on language ability than on their skills in auditory discrimination. Although auditory discrimination led among factors related to reading readiness in Sister Nila's study (1953), it did not figure as significantly in word recognition in the present investigation. It appears that children at the end of grade one have reached a fairly high level of ability in the discrimination of phonemes, but they may not have attained the level of auditory perception which would permit them to sound new words independently. It seems logical to assume, that, for these children, a knowledge of words and their meanings will provide a major cue in word recognition.

HYPOTHESIS V

The correlation between scores on the Gates-MacGinitie Reading Test and scores on Watts' Vocabulary Test for Young Children is not significantly different from the correlation between scores on the Gates-MacGinitie Reading Test and scores on the California Achievement Test.

There is no significant difference between word and meaning retrieval and visual discrimination as factors in word recognition ability. Therefore Hypothesis V is upheld.

A t value of .12 as presented in Table 5 does indicate a slight difference in relationship in favor of word and meaning retrieval but the difference is not significant.

It might be conjectured that by the end of grade one the majority of children will be quite proficient in detecting similarities and differences in word form. However, there are undoubtedly some children who have not reached the perceptual stage of development which would enable them to visually analyze new words into units which they can pronounce and recognize. Authorities agree that frequency of word usage is related to ease in word recognition. With increasing familiarity of a word the individual tends to use reduced cues (probably a few letters) in word recognition. The children in this study were possibly as dependent upon cues from their language experience as they were upon visual discrimination of word and letter forms.

HYPOTHESIS VI

The correlation between scores on the Gates-MacGinitie

Reading Test scores on Watts' Vocabulary Test for Young Children is not significantly different from the correlation between scores on the Gates-MacGinitie Reading Test and the combined scores on the Wepman Auditory Discrimination Test and the California Achievement Test.

There is no significant difference between word and meaning retrieval and ability in initial word identification as factors in ability in word recognition. A t value of .64 is not sufficiently large to give word and meaning retrieval prior status as a factor in word recognition. On the basis of this information Hypothesis VI is upheld.

Ability in initial word identification was determined by combining the scores for auditory discrimination and visual discrimination. Table 5 indicates that the correlation of initial word identification with word recognition was only slightly higher than the correlation between word and meaning retrieval and word recognition. The correlation coefficient for these correlated variables indicated no significant difference between ability in initial word identification and facility in word and meaning retrieval as factors in word recognition.

Both initial word identification and word and meaning retrieval contributed significantly to word recognition for the subjects in this study. It is believed that these components of word recognition operated interdependently in the perceptual process, and that one factor tended to reinforce the other. The extent of the contribution made by each undoubtedly varied with individual children. In some cases the pupils probably required only minimal auditory and visual

clues to set off the process of associating word forms with their oral language and meaning referents. In other situations they may have attempted word analysis and word synthesis if the initial sensory experience did not permit the retrieval of the word and its meaning.

The children with the richer experience with words no doubt were able to abstract more effectively pertinent similarities among them and arrive at generalizations about them. The less fluent pupils were probably restricted to the limitations of sight-word recognition and a greater dependence upon visual and auditory clues. On the average, for the subjects in the present study both initial word identification and word and meaning retrieval made significant (and almost equivalent) contributions to word recognition ability.

SUMMARY OF CONCLUSIONS

The following conclusions were reached from the interpretations of the findings of this study:

1. Fluency in word and meaning retrieval is a significant factor in ability in word recognition. It is also related to skill in auditory and visual discrimination.
2. There is no significant difference in the relative contributions of word and meaning retrieval, auditory discrimination, and visual discrimination to success in word recognition.
3. Word and meaning retrieval, auditory discrimination, and visual discrimination function interdependently in the perceptual act of word recognition.
4. Children at the end of grade one vary to a considerable degree in their ability in word and meaning retrieval.

LIMITATIONS OF THE STUDY

This investigation attempted to ascertain the contribution made by the oral language facility of grade one children to their ability in word recognition. Standardized tests were used to measure auditory discrimination and word recognition. The instrument used for measuring visual discrimination was prepared from items on a standardized test. A certain measure of content validity can be claimed although test reliability and test validity were not established. Practically all of the items on the word and meaning retrieval test were drawn from a vocabulary test which has provided data that compares favorably with the results of recent research on the vocabulary growth of children. However, due to the fact that norms for the original test were produced in Britain, corresponding grade scores were not considered for purposes of comparison.

Every effort was made to select a sample representative of the grade one children of Edmonton. However, limitations imposed by the fact that schools were selected by the Public School Board staff meant that the sample was not completely representative of that population.

IMPLICATIONS FOR THE TEACHING OF READING

The significant relationship that has been found to exist between word and meaning retrieval and word recognition suggests that facility in oral language and ability in concept formation are basic to success in beginning reading. Indeed, it appears evident that oral language experience deserves consideration not only as a forerunner of reading instruction but also as an integral aspect of

the teaching of word recognition.

The relative position held by word and meaning retrieval in comparison with skill in auditory and visual discrimination in the word recognition process suggests, first, that the implications for a reading readiness program are twofold. Not only should provision be made for the development of auditory and visual skills, but these skills must also be complemented by a parallel development in oral language fluency. This generalization is supported by authorities in the field of reading as well as by findings in the present study. Only to the extent that a given word is in a child's spoken vocabulary does the printed symbol release meaning and initiate thought processes concomitant with the perceptual act of word recognition. The more meaningful, the word, the more readily it will be retrieved, and the more easily it will be retained as a sight word.

The subjects in this study who scored high in word recognition were those children who scored high on the oral vocabulary test. At the same time, test results indicate that they also did well on tests in auditory and visual discrimination. The children with low scores in word recognition also had low scores in oral vocabulary, but, in most cases they did reasonably well in auditory and visual discrimination.

These findings suggest that teachers should continue to provide training in auditory and visual discrimination for children who are deficient in these skills, and they must also attempt to enrich the oral vocabularies of all beginning readers. Activities should be planned where deliberate attention is given to the development of concepts, and opportunities must be provided for the oral

expression of them. Reading readiness exercises designed to train grade one children in auditory and visual discrimination could be supplemented with activities such as listening to stories read, discussing picture stories, participating in dramatic play, and, even hearing well-chosen words spoken by the teacher.

It is important, too, that attention to growth in language ability be continued after reading has begun. Visual and auditory cues are augmented by meanings, concepts, and emotional connotations in the perceptual act of word recognition. This interplay between symbol discrimination and language facility requires that oral language growth keep pace with word identification skills. Therefore, the teacher should endeavour to enlarge the child's linguistic background by providing appropriate experiences and the opportunity for oral expression of them. Devices such as discussion, experience charts, films, filmstrips, and recordings can be used to relate meaning from his own experience to a broader variety of words in printed material.

Reading instruction must be planned and organized with a view to enlarging the child's repertoire of meanings so that vivid and accurate concepts can be formed. Attention to vocabulary growth and concept formation will enhance the growth of skill in word recognition. Then, as the child reads more, he builds an ever larger vocabulary, and his word recognition ability continues to develop.

In summary, the implications for reading instruction suggested by this study are as follows:

1. Oral language experience should play a prominent role in the reading readiness program.

2. Attention should be given to the continuous growth of oral vocabulary and concept formation ability.

3. Language competence and skill in auditory and visual discrimination are interdependent factors in word recognition, therefore provision should be made for their complementary development.

SUGGESTIONS FOR FURTHER RESEARCH

The findings of this investigation have provided a basis for suggesting implications for reading instruction in grade one. There are, however, areas in the study in which further research might be made as follows:

1. Additional auditory tests might be given to determine the contribution of auditory memory to initial word identification. The Wepman Auditory Discrimination Test measures only short term retention. Many of the children in this study appeared to have reached a fairly complex level of auditory discrimination so the Wepman test may not have fully tested their capabilities.

2. The effect upon the measurement of ability in visual discrimination of increasing the number of test items by combining the two forms of the standardized subtests might be examined. The pilot study in the present research concerned itself primarily with the reaction of the subjects to the longer testing period and to the use of script in some of the items.

3. An oral test in word recognition rather than a paper-and-pencil test might reveal to what extent grade one children use phonetic analysis to interpret printed symbols.

4. Some items in the test used to measure ability in word and

meaning retrieval could include questions which would test the child's skill in using spoken context. He could be asked to complete items such as the following:

Tommy sailed his boat on the _____.

The jetliner landed at the _____.

Mary cleaned the floor with a _____.

5. A study of the effect of mental age upon ability in word and meaning retrieval might provide useful information for the planning of reading readiness.

6. An investigation might be made into the effect of a language experience approach to reading as opposed to the basal reader method upon the ability of grade one children in word and meaning retrieval.

CONCLUDING STATEMENT

The purpose of this study was to examine the relationship of the ability of grade one children to retrieve words and their meanings with their ability in word recognition. Other investigators had studied the abilities in initial word identification as they relate to reading readiness and word recognition but no attempt had been made to examine word and meaning retrieval as a component of word recognition ability. This study compared the correlation with word recognition ability of ability in word and meaning retrieval, auditory discrimination, visual discrimination, and initial word identification.

The findings of the present study indicated that, as a single factor, ability to retrieve words and their meanings was most closely related to ability in word recognition. The correlation of word recognition ability with the combined abilities of auditory and visual

discrimination was only slightly higher. However, there was no significant difference between the contributions of individual components to ability in word recognition.

From these results it was concluded that grade one children require language experiences basic to concept formation not only at the pre-reading stage, but also in conjunction with their training for word recognition in reading. It was also evident that training provided in the skills of auditory and visual discrimination should be based upon the needs of individual children in initial word identification. For the subjects in this study, fluency in word and meaning retrieval was found to be a significant factor in word recognition ability.

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APPENDICES

APPENDIX A. Visual Discrimination Test

TEST 1 SECTION A

DIRECTIONS: LOOK AT THE WORDS BELOW. IF TWO WORDS ARE THE SAME OR MEAN THE SAME, WRITE *S* ON THE LINE BETWEEN THEM. IF THEY MEAN DIFFERENT THINGS, WRITE *D*.

SAMPLE A. dog *S* dog
SAMPLE B. sit *D* fun

1. made-----made

2. that-----that

3. own-----one

4. sign-----sing

5. goes-----goes

6. does-----does

7. open-----open

8. make-----make

9. was-----saw

10. pal-----lap

11. *triangle*-----triangle

12. *stationary*-----stationary

13. what-----that

14. clock-----clock

15. WINDOW-----*window*

16. GRACEFUL-----*graceful*

17. MOTHER-----mother

18. NEITHER-----neither

19. but-----tub

20. on-----no

21. FATHER-----father

22. COMPRESS-----compress

23. pretense-----present

24. costume-----custom

25. meadow-----MEADOW

26. steer-----STEER

27. PAT ----- RAT

28. FAST ----- EAST

29. LONELY ----- *lonely*

30. PRETEND----- *pretend*

31. dear----- deer

32. know ----- no

33. quick ----- quack

34. went-----want

35. bat -----tab

36. bad -----dab

37. REPORT -----RESORT

38. PROPERTY-----PROSPERITY

39. *satisfaction*----- satisfied

40. *ambitious* ----- ambition

41. clearing---cleaning

42. protect ----protest

43. mouth----- MOUTH

44. letter-----LETTER

45. POSTURE-----POSTER

46. SURPRISE---SUPPOSE

47. watch-----witch

48. fall-----fill

49. tame-----mate

50. stead-----dates

APPENDIX B. Auditory Discrimination Test

AUDITORY DISCRIMINATION TEST

FORM I

			X	Y
1.	tub	- tug		
2.	lack	- lack		
3.	web	- wed		
4.	leg	- led		
5.	chap	- chap		
6.	gum	- dumb		
7.	bale	- gale		
8.	sought	- fought		
9.	vow	- thou		
10.	shake	- shape		
11.	zest	- zest		
12.	wretch	- wretch		
13.	thread	- shred		
14.	jam	- jam		
15.	bass	- bath		
16.	tin	- pin		
17.	pat	- pack		
18.	dim	- din		
19.	coast	- toast		
20.	thimble	- symbol		

			X	Y
21.	cat	- cap		
22.	din	- bin		
23.	lath	- lash		
24.	bum	- bomb		
25.	clōthe	- clōve		
26.	moon	- noon		
27.	shack	- sack		
28.	sheaf	- sheath		
29.	king	- king		
30.	badge	- badge		
31.	pork	- cork		
32.	fie	- thigh		
33.	shoal	- shawl		
34.	tall	- tall		
35.	par	- par		
36.	pat	- pet		
37.	muff	- muss		
38.	pose	- pose		
39.	lease	- leash		
40.	pen	- pin		

Error Score

X	Y

Name of Child:

Date Tested:

Examiner's Name:

Age:

Date of Birth:

Grade:

Name of School:

Disabilities:

Hearing:

Reading:

Speaking:

Other:

I.Q.:

Test:

Error Score:

	X	Y
Form C	<div><div></div><div>30</div></div>	<div><div></div><div>10</div></div>
Form D	<div><div></div><div>30</div></div>	<div><div></div><div>10</div></div>

Additional Comments:

APPENDIX C. Gates-MacGinitie Reading Test

Print your name here

How old are you?

When is your birthday?

Grade Date

School Teacher

VOCABULARY SAMPLES

A.



did

egg

dog

two

B.



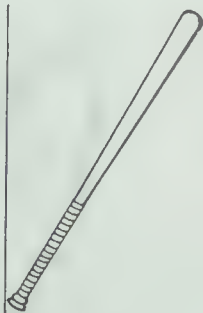
bed

swim

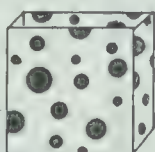
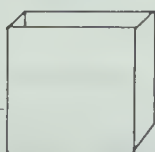
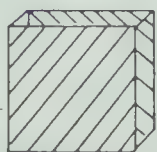
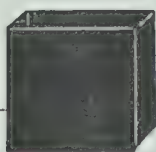
milk

fly

COMPREHENSION SAMPLES



A. Where is the baby?



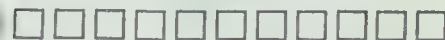
B. The white box is on the shelf.

GATES— MacGINITIE READING TESTS

FORM 1

PRIMARY A, FORM 1

Vocabulary and Comprehension



TEACHERS COLLEGE PRESS
TEACHERS COLLEGE
COLUMBIA UNIVERSITY
NEW YORK

To the Teacher:

BE SURE to follow the directions in the Manual (included in each test package) when giving these tests. The directions will tell you how to explain the tests and how to work the sample items with the students. Allow the exact time specified in the Manual.

VOCABULARY

Number correct

Standard score

Percentile score

Grade score

COMPREHENSION

Number correct

Standard score

Percentile score

Grade score

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Printed in U.S.A.

10 9 8 7 6 5 4 3

1.



all

pig

eye

fly

2.

4

foot

soup

door

four

3.



duck

fish

face

rock

4.



made

ball

girl

cent

5.



bird

bring

fire

hard

6.



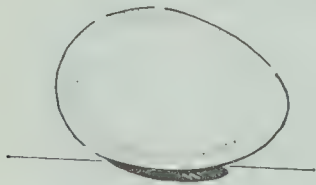
made

ball

play

baby

7.



had

egg

eat

not

8.



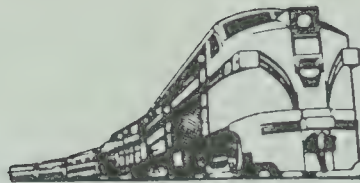
boy

cow

arm

bat

9.



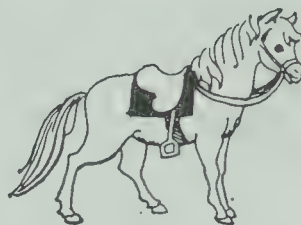
tree

draw

again

train

10.



pair

puppy

pony

money

11.



bell

bear

star

read

12.



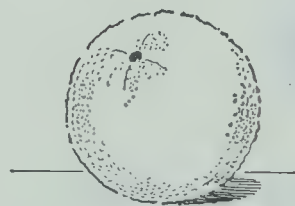
father

matches

fanning

winter

13.



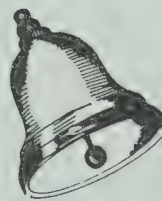
oven

oxen

orange

change

14.



help

will

been

bell

15.



say

out

pig

sit

16.



wolf

talk

work

wood

17.



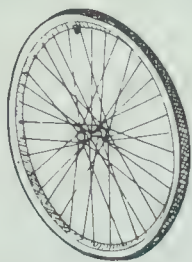
frog

flag

floor

clap

18.



wheel

wheat

what

smell

19.



cook

took

roof

clock

20.



fight

lost

light

lifts

21.



pies

rock

pick

pink

22.



lip

stop

ship

shoe

23.



liking

walking

wanting

talked

24.



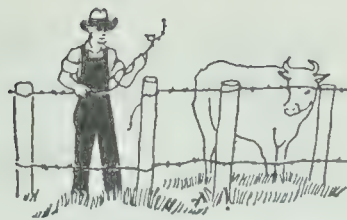
ride

hide

hill

made

25.



forty

warmer

farmer

falling

26.



stocking

standing

splash

something

27.



hall

call

cart

calf

28.



wolf

tail

take

ship

29.



wall

want

talk

roll

30.



bite

wishes

wing

write

31.



grass

cross

loss

crow

32.



rock

rope

hose

rose

VOCABULARY TEST FOR YOUNG CHILDREN

Name of Child _____

Date _____

Instructions: 1. Below will be found 100 questions to be answered orally and individually by children from three and a half years of age and upward.

2. The form of words employed in questioning and the suggested action (where indicated) may occasionally be varied in order to bring out the required answer if it is misunderstanding and not ignorance which stands in the child's way.

3. The number of questions asked at a sitting must depend upon age and intelligence.

4. It will be noted that questions 1-50 deal with what is seen, while questions 51-100 deal with what is merely described.

5. The words in capitals indicate the correct answers.

I. Which part of my face am I touching?

- _____ 1. NOSE
- _____ 2. NOSTRILS
- _____ 3. EYES
- _____ 4. EYEBROWS
- _____ 5. EYELASHES

II. Now watch what I am going to do. What am I doing now?

- _____ 6. WRITING
- _____ 7. THREADING A NEEDLE
- _____ 8. TAPPING THE TABLE
- _____ 9. SCRATCHING YOUR HEAD
- _____ 10. UNFASTENING YOUR BUTTON OR UNBUTTONING YOUR

III. I wonder whether you can tell me what this is?

- _____ 11. SCISSORS
- _____ 12. SAFETY-PIN
- _____ 13. COMB
- _____ 14. RAZOR-BLADE
- _____ 15. TAPE-MEASURE (MEASURING TAPE)

IV. What am I going to do now? What do we call this?

- _____ 16. CLAPPING YOUR HANDS
- _____ 17. RUBBING YOUR ELBOW
- _____ 18. SQUEEZING YOUR FINGER

- _____ 19. CLENCHING YOUR FIST
- _____ 20. PATTING YOUR HEAD

V. Look at these things I have cut out and tell me what they are.

- _____ 21. SQUARE
- _____ 22. CIRCLE
- _____ 23. TRIANGLE
- _____ 24. DIAMOND
- _____ 25. STAR

VI. Now tell me what the coins are which I am going to show you.

- _____ 26. PENNY (ONE CENT)
- _____ 27. NICKEL
- _____ 28. DIME
- _____ 29. QUARTER
- _____ 30. FIFTY CENTS (ONE-HALF DOLLAR)

VII. Now look at this square and tell me where I put the next one.

- _____ 31. INSIDE IT (IN THE MIDDLE)
- _____ 32. BELOW OR UNDERNEATH IT
- _____ 33. ON THE RIGHT (-HAND) SIDE (OF IT)
- _____ 34. ON THE LEFT (-HAND) SIDE (OF IT)
- _____ 35. (ALL) ROUND IT OR OUTSIDE IT

VIII. Listen to what I am going to do now. What do we call it?

- _____ 36. WHISTLING
- _____ 37. WHISPERING
- _____ 38. SIGHING
- _____ 39. SNORING
- _____ 40. HUMMING

IX. I am going to show you some things in twos. I will tell you what one is, and you can tell me what the other is. -- Feel these.

- _____ 41. SMOOTH This is rough, but that is?
-- Look at these pencils.
- _____ 42. BLUNT (DULL) This is sharp, but that is?
- _____ 43. SLANTING (DIAGONAL) This is upright, but that is?
-- Look at these pieces of paper.
- _____ 44. FOLDED This one is flat, but that one has been?
-- Look at these two boys (girls).
- _____ 45. DARK He (she) is fair, but he (she) is?

X. I wonder if you know what these articles are made of.

- _____ 46. WOOL
- _____ 47. SILK (NYLON)
- _____ 48. COTTON (CALICO, ETC.)
- _____ 49. LEATHER
- _____ 50. LINEN

XI. Now I am going to ask you some questions about things you have seen at home. I expect you can answer them.

- _____ 51. CREAM Which part of the milk comes to the top?
- _____ 52. CRUST What do we call the outside of a loaf of bread?
- _____ 53. YOLK What do we call the yellow part of an egg?
- _____ 54. SPOUT Which part of the teapot is the tea poured out from?
- _____ 55. CORE What do we call the part of an apple where you find the seeds?

XII. Now some questions about storekeepers and what they sell.

- _____ 56. BUTCHER Who sells meat?
- _____ 57. GROCER Who sells sugar and tea?
- _____ 58. TAILOR Who makes and sells men's clothes?
- _____ 59. DRUGGIST Who sells pills and medicines?
- _____ 60. BAKER Who makes and sells bread?

XII. Which animal gives us the meat I am going to mention?

- _____ 61. COW Beef
- _____ 62. PIG Pork
- _____ 63. SHEEP Lamb
- _____ 64. CALF Veal
- _____ 65. PIG Bacon

XIV. When you buy things you have to know how much to ask for.

- _____ 66. PINT(S) or QUART(S) How much would you ask for if you had to buy some milk?
- _____ 67. TON(S), HALF-TON How much would you ask for if you had to buy some coal?
- _____ 68. POUND(S), HALF-POUND, OUNCE(S), ETC. How much would you ask for if you had to buy some tea?
- _____ 69. GALLON(S) How much would you ask for if you had a motor-car and had to buy some gasoline?
- _____ 70. DOZEN What is another name for twelve eggs?

XV. Now see if you can tell me what we call the man who does this.

- _____ 71. MAILMAN or POSTMAN The man who brings the letters to your home?
- _____ 72. CONDUCTOR. The man who gives you your ticket on the bus or train?

- _____ 73. DENTIST The man who fixes your teeth?
- _____ 74. WAITRESS The woman who serves you with food in a restaurant.
- _____ 75. PLUMBER The man who mends the gas-pipes and the water-pipes when they leak?

XVI. Now see if you know these different ways of eating and drinking.

- _____ 76. NIBBLING Biting a tiny bit at a time like a mouse is called...?
- _____ 77. SIPPING Drinking just a little at a time is called...?
- _____ 78. CHEWING Biting our food up and getting it ready to swallow is called...?
- _____ 79. CRUNCHING Eating hard biscuits in a noisy manner is called...?
- _____ 80. LAPPING IT UP The cat drinks her milk by taking it up with her tongue. We call that ...?

XVII. Here are some questions about the kitchen at home.

- _____ 81. REFRIGERATOR (DEEP-FREEZE) or ICE-BOX What do we call the place where we keep food cold?
- _____ 82. TOWEL, DISHWASHER What do we use to dry the dishes?
- _____ 83. SOOT What does the smoke leave behind it in the chimney?
- _____ 84. ASHES or CINDERS What is left when the fire is burnt right out.
- _____ 85. COKE or WOOD or GAS What can be burned instead of coal?

XVIII. Now see if you can tell me these things about the street.

- _____ 86. SIDEWALK or CEMENT or PAVEMENT What is the part we walk on called?
- _____ 87. CURB What is the edge of this part (next to the road) called?
- _____ 88. GUTTER What is the part called where the water collects and runs along?
- _____ 89. DEAD END STREET What do we call a street which has no way out?
- _____ 90. CROSS-WALK What do we call the part of the street marked in white that lets you walk from one side of the street to the other?

XIX. Here are some of the things which mother may do in cooking the dinner.

- _____ 91. BOIL THEM She puts the potatoes in the saucepan on the stove to?
- _____ 92. BAKE IT She puts the pie in the oven to?
- _____ 93. TOAST IT She puts a slice of bread in an electric machine to ...?
- _____ 94. FRY IT She puts the bacon into the pan on the stove to...?
- _____ 95. ROAST IT She puts the chicken into the oven to ...?

XX. I expect you know what the answers to these questions are.

- _____ 96. BOUNCING IT Throwing a ball down to the ground to make it come up again is called ...?
- _____ 97. MIMICKING HIM (COPYING HIM, IMITATING HIM) When we pretend to do exactly the same as somebody else we say that we are ...?
- _____ 98. HIDING When you put yourself where you cannot be seen we say that you are ...?
- _____ 99. RACING When you and other boys (girls) are running to see who will win we say that you are ...?
- _____ 100. HOPPING When you are jumping along on one foot we say that you are ...?

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